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2N/PN3567 • 2N/PN3568 • 2N/PN3569

NPN SMALL SIGNAL GENERAL PURPOSE AMPLIFIERS

DIFFUSED SILICON PLANAR* EPITAXIAL TRANSISTORS

ABSOLUTE MAXIMUM RATINGS (Note 1)

		2N3567/8/9	PN3567/8/9
Maximum Temperatures			
Storage Temperature		–55°C to +125°C	–55°C to +150°C
Operating Junction Temperature		125°C	150°C
Lead Temperature (10 seconds)		260°C	260°C
Maximum Power Dissipation (Notes 2 & 3)			
Total Dissipation at 25°C Case Temperature		0.8 W	1.0 W
at 25°C Ambient Temperature		0.3 W	0.625 W
Maximum Voltages and Currents		**2N/PN3568**	**2N/PN3567/9**
V_{EBO}	Emitter to Base Voltage	5.0 V	5.0 V
V_{CBO}	Collector to Base Voltage	80 V	80 V
V_{CEO}	Collector to Emitter Voltage (Notes 4 & 6)	60 V	40 V
I_C	Collector Current	500 mA	500 mA
I_B	Base Current	100 mA	100 mA

ELECTRICAL CHARACTERISTICS (25°C Ambient Temperature unless otherwise noted)

SYMBOL	CHARACTERISTIC	2N/PN3567 MIN.	2N/PN3567 MAX.	2N/PN3568 MIN.	2N/PN3568 MAX.	2N/PN3569 MIN.	2N/PN3569 MAX.	UNITS	TEST CONDITIONS
I_{CBO}	Collector Cutoff Current		50		50		50	nA	V_{CB} = 40 V, I_E = 0
			5.0		5.0		5.0	μA	V_{CB} = 40 V, I_E = 0, T_A = 75°C
I_{EBO}	Emitter Cutoff Current		25		25		25	nA	V_{EB} = 4.0 V, I_C = 0
BV_{CBO}	Collector to Base Breakdown Voltage	80		80		80		V	I_E = 0, I_C = 100 μA
BV_{EBO}	Emitter to Base Breakdown Voltage	5.0		5.0		5.0		V	I_C = 0, I_E = 10 μA
BV_{CEO}	Collector to Emitter Breakdown Voltage (Note 5)	40		60		40		V	I_B = 0, I_C = 30 mA
h_{FE}	DC Current Gain (Note 5)	40	120	40	120	100	300		V_{CE} = 1.0 V, I_C = 150 mA
		40		40		100			V_{CE} = 1.0 V, I_C = 30 mA
$V_{BE(ON)}$	Base to Emitter "On" Voltage (Note 5)		1.1		1.1		1.1	V	V_{CE} = 1.0 V, I_C = 150 mA
$V_{CE(sat)}$	Collector to Emitter Saturation Voltage (Note 5)		0.25		0.25		0.25	V	I_C = 150 mA, I_B = 15 mA
C_{cb}	Collector to Base Capacitance		20		20		20	pF	I_E = 0, V_{CB} = 10 V, f = 140 kHz
C_{eb}	Emitter to Base Capacitance		80		80		80	pF	I_C = 0, V_{EB} = 0.5 V, f = 140 kHz
$\|h_{fe}\|$	Magnitude of Common Emitter Small Signal Current Gain	3.0	30	3.0	30	3.0	30		V_{CE} = 10 V, I_C = 50 mA f = 20 MHz

NOTES:
1. These ratings are limiting values above which the serviceability of any individual semiconductor device may be impaired.
2. These are steady state limits. The factory should be consulted on applications involving pulsed or low duty cycle operations.
3. These ratings give a maximum junction temperature of 125°C and junction to case thermal resistance of 125°C/W (derating factor of 8.0 mW/°C); junction to ambient thermal resistance of 333°C/W (derating factor of 3.0 mW/°C) for 2N3567, 2N3568, and 2N3569. These ratings give a maximum junction temperature of 150°C/W and junction to case thermal resistance of 125°C/W (derating factor of 8.0 mW/°C); junction to ambient thermal resistance of 200°C/W (derating factor of 5.0 mW/°C) for PN3567, PN3568, and PN3569.
4. This rating refers to a high current point where collector to emitter voltage is lowest.
5. Pulse Conditions: length = 300 μs; duty cycle = 1%.
6. Applicable 0 to 30 mA.